UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JUN 17 2011

REPLY TO THE ATTENTION OF:

E-19J

James Sanders
Forest Supervisor
Superior National Forest
8901 Grand Avenue Place
Duluth, Minnesota 55808

Re: Comments on the Draft Environmental Impact Statement for Federal Hardrock Mineral Prospecting Permits on the Superior National Forest, Cook Lake, St. Louis, Koochiching Counties, Minnesota - EIS No. 20110090

Dear Mr. Sanders:

The U.S. Environmental Protection Agency has reviewed the U.S. Forest Service's (USFS) Draft Environmental Impact Statement (EIS) for the above-mentioned project. Our comments in this letter are provided in accordance with our responsibilities under the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act.

The Bureau of Land Management (BLM) received applications to conduct mineral exploration drilling and geophysical activities on federally-owned minerals within the Superior National Forest (SNF). According to Federal law, whenever BLM receives applications for mineral exploration on National Forest System lands, the applications must be evaluated in conjunction with USFS. The USFS produced the above-mentioned Draft EIS, which analyzes whether mineral exploration: a) can be conducted in an environmentally-sound manner and b) is consistent with the goals, objectives, and standards defined in the 2004 SNF Land and Resource Management Plan.

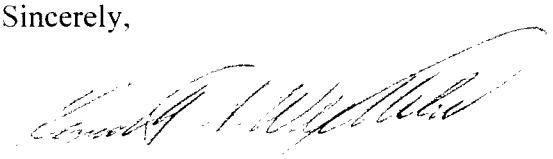
The project, located in Cook, Lake, St. Louis, and Koochiching Counties, is mineral exploration within the SNF. Geologic information and core samples collected will be used to find, analyze, and map the presence and extent of minerals along the base of the Duluth Complex. Lands withdrawn from mineral entry are the Boundary Waters Canoe Area Wilderness (BWCAW), Mining Protection Areas, and Pigeon River Wild River Segments. Currently, 45 existing prospecting permit applications and one permit extension application for a total of 46 applications have been received by BLM. Only 32 of the prospecting permit applications and one permit extension application are complete with exploration plans for a total of 33 complete applications. The Draft EIS analysis assumes the remaining exploration plans will be submitted within a few years following a Record of Decision (ROD). Additionally, assumptions were

made regarding the number of potential prospecting permit applications and operating plans that will be submitted within the next 5 years. The Draft EIS assumed that an average of 10 prospecting permits will be submitted each year for five years for a total of 50 prospecting permit applications; this assumption is based on typical mineral exploration in northern Minnesota during the past 5 years as well as professional experience and knowledge of USFS and BLM personnel. Therefore, the Draft EIS analyzes impacts from 96 prospecting permits within a 20-year scenario timeframe. Maximum disturbance scenarios have been incorporated into all action alternatives.

The Draft EIS analyzes impacts from the No Action Alternative and four action alternatives. Alternative 2 is identified as the Proposed Action, and Alternative 4 is identified as the agency-preferred alternative. Based on our review of the Draft EIS and prospecting permit applications and operating plans, EPA has assigned a rating of "Environmental Concerns – Insufficient Information," or "EC-2" to this document. Our summary of ratings definitions is enclosed. These ratings are based on impacts to aquatic resources, air quality, noise, light, and visitor use. Additional concerns include environmental justice and threatened and endangered wildlife species. We have enclosed detailed comments outlining our issues and offer recommendations.

We appreciate the opportunity to review this Draft EIS, and we look forward to receiving future NEPA documentation. If you have any questions concerning these comments, please contact me or individual staff. Questions concerning water resources, noise or threatened and endangered wildlife species can also be directed to Kathy Kowal ((312) 353-5206 or kowal.kathleen@epa.gov), air quality to Tony Maietta ((312) 353-8777 or maietta.anthony@epa.gov), and questions regarding light impacts, visitor use or environmental justice can be directed to Elizabeth Poole ((312) 353-2087 or poole.elizabeth@epa.gov).

Sincerely,



Kenneth A. Westlake
Chief, NEPA Implementation Section
Office of Enforcement and Compliance Assurance

cc: James McDonald, Regional Environmental Coordinator, USFS, Milwaukee, Wisconsin

Enclosures: Summary of Ratings Definitions
U.S. Environmental Protection Agency Comments on the U.S. Forest Services' Draft Environmental Impact Statement for Federal Hardrock Mineral Prospecting Permits on the Superior National Forest, Cook Lake, St. Louis, Koochiching Counties, Minnesota dated June 17, 2011
Cleaner Diesels: Low Cost Ways to Reduce Emissions from Construction Equipment

U.S. Environmental Protection Agency Comments on the U.S. Forest Services' Draft Environmental Impact Statement for Federal Hardrock Mineral Prospecting Permits on the Superior National Forest, Cook Lake, St. Louis, Koochiching Counties, Minnesota June 17, 2011

Water Resources

Groundwater

The Draft EIS indicates that sump pits are dug to store and re-circulate water, drilling fluids, drilling clays, and other State-approved additives for drilling. Drilling cuttings are also stored in sump pits. In cases where bedrock is too close to the surface to dig a sump, a tank may be used as a reservoir and settling point for core cuttings as water circulates through the drill hole. Approximately 70-80 percent of the drilling during the past 5 years resulted in sump pits being dug, based on conversations between Loretta Cartner of USFS and Kathy Kowal of my staff.

Bureau of Land Management's (BLM) Gold Book (page 16) states that sump (reserve) pits "should normally be located entirely in cut material. Avoid constructing reserve pits in areas of shallow groundwater. Reserve pits should not be constructed in natural watercourses. Watercourses include lake beds, gullies, draws, streambeds, washes, arroyos, or channels that are delineated on a 1:24,000 USGS quadrangle map or have a hydrologic connection to streams, rivers, or lakes."

Because of the large amount of streams and wetlands in the proposed drilling areas, we believe that there are few, if any, drilling locations in which there is not "a hydrologic connection to streams, rivers, or lakes."

> **Recommendation:** We recommend USFS adopt the sump pit location requirement as stated in the Gold Book if sump pits are used at a drill site.

Sumps are reclaimed after the drill holes are completed, and either the cuttings are left in the sump and backfilled during reclamation or they may be removed and disposed of off-site in accordance with applicable rules and laws. Drill cuttings from tanks are disposed of in an off-site, non-wetland location and buried in a similar manner as sump pits or taken to a regional landfill.

BLM's Gold Book (page 17) requires that sump (reserve) pits "be appropriately fenced to prevent access by persons, wildlife, or livestock." Additionally, it states, "the fence should remain in place until pit reclamation begins." Also, "in some situations and locations, precautions, such as netting, may be required in order to prevent access and mortality of birds and other animals."

> **Recommendation:** We recommend USFS adapt the fencing requirement as stated in the Gold Book if sump pits are used at a drill site.

The purpose of water quality stipulation 7 included in the Draft EIS is to reduce the risk of untreated drill water from interacting with wetlands or water resources. We believe this stipulation could be enhanced by adding the following two requirements: 1) the use of tanks, rather than sump pits, at all drill sites to avoid potential groundwater damage from unlined sumps that could allow drainage into groundwater and surrounding strata; and 2) the disposal of residual sulfide ores from core samples in an existing mining pit or other, appropriately-licensed facility that allows storage covered by water to avoid oxidization.

These recommendations are based on the premise that the Duluth Complex is rich in the sulfate ion, which forms sulfuric acid when exposed to air and oxygenated water. The sulfuric acid will dissolve the metals, causing leaching/acid mine drainage. Backfilling during reclamation creates the possibility of water leaching through or groundwater levels fluctuating, resulting in oxidation and possible contamination of groundwater. Burying drill cuttings from tanks in pre-approved areas either on or off the SNF creates a similar situation, with the possibility of water leaching through or groundwater levels fluctuating. To properly dispose of cuttings in a regional landfill, the landfill should contain an impermeable liner and bentonite cap to prevent water from reaching cuttings and oxidizing; however, these provisions were not mentioned in the Draft EIS.

As mentioned in the Draft EIS, one indicator used to measure potential direct, indirect, and cumulative effects to groundwater quality is the production capacity of existing wells used for domestic water supply due to the introduction of grout into the existing fractured system. Conclusions in *Section 3.6, Water Resources* are stated as follows:

> "**Conclusion:** From 1948 to 2002, over 1,700 core holes totaling over 1.4 million feet of core have been drilled in the basal zones of the Duluth complex (Miller 2002) (see Map 7). These have occurred on State, Federal, County, and private lands. The drilling methods and abandonment techniques are very similar to the proposed exploratory drilling. *There have been no reported problems to the Minnesota Department of Health (MDH) related to groundwater quality or production rates related to these previously established holes.* Based upon this, the proposed drilling activity with the prescribed project design features described in section 2.4.3 is not anticipated to have a noticeable effect on the quality or quantity of the groundwater resource. Based upon these considerations and mitigation measures, the results of the proposed action alternatives should not exceed the potability standards of groundwater. The activity should not impact the potability of the groundwater or the production capacity of existing wells." (emphasis added)

Because effects to groundwater may take several decades to materialize and the Draft EIS indicates a temporal scale of 25 years for groundwater quality (Table 28), the Draft EIS does not discuss efforts to monitor groundwater for acidic changes due to oxidization. The statement in italics in the above Conclusion, does not speak to monitoring.

In addition to downward movement of water from the sump pits into the local groundwater, horizontal movement can occur, resulting in seeps into streams, rivers, lakes, and wetlands.

As stated on page 24 of the DEIS, the historical depth of drill holes has been between 500 to 1000 feet. Recent drilling depths have been between 1500 to 3500 feet, with rare instances of 4500 feet. This increase in depth also means an increase in the amount of chips that would be present in the sump pits. In this case, there could be an increase of between 1.5 to 9.0 times the amount of chips than in the past. In addition, if multiple holes are drilled at one site, this would increase the amount of chips proportionately to the number of holes and their depths at any one sump pit.

There are concentrated drill areas, such as the Duluth Metal drill sites just south of the Tomahawk Snowmobile Trail (Figure 12, page 89 in DEIS) that will produce a large amount of chips over a small area.

Although one drill site taken by itself may not seem to have a great effect on the environment, the cumulative effects of drilling over a wide area and over multiple decades needs to be taken into consideration. Some sites have been drilled by multiple companies over the years, each company leaving their own chips; there is no expectation that exploration in the area will stop.

BLM's Gold Book states on Page 17, "Depending on the proposed contents of the pit and sensitivity of the environment, the surface management agency may require a leak detection system or the use of self-contained mud systems with the drilling fluids, mud, and cuttings being transported to approved disposal areas."

The use of tanks would avoid potential effects to groundwater and flora due to acidic changes to the water and soil.

> **Recommendation:** We recommend USFS require the use of tanks at all drilling sites and proper disposal of cuttings as stated above.

Wetlands

The Draft EIS indicates that temporary road or landings construction within wetlands for exploratory drilling is subject to the Clean Water Act standards and may, therefore, require a Section 404 permit from the U.S. Corps of Engineers for wetland filling. Sequencing (avoidance, minimization, and, lastly, mitigation) is part of this permit process. The Draft EIS also indicates that wetlands soils are required to be crossed/occupied during frozen/winter conditions or must be avoided. This information indicates that wetland impacts will be minimized to the extent practicable through discussion between permitees and USFS personnel and implementation of Plan standards and guidelines to minimize effects on aquatic resources and water quality. However, we believe the analysis of potential wetland impacts would be bolstered by a discussion of wetland impacts that have occurred as a result of exploratory drilling during the past five years.

We realize drilling activities that occurred during the past five years do not predict future impacts that could occur if exploratory drilling is approved on the SNF for the next five years; nevertheless, a quantitative review of wetland impacts that resulted during historic

drilling activities would provide the reviewer with a better understanding of the type and extent of impacts to wetland resources from similar, historic drilling. To that end, we believe a comprehensive review of wetland impacts that occurred as a result of providing road access or constructing a drill pad (i.e., vegetation removal or grubbing) would be appropriate. We recommend such an analysis include the following:

- estimate of acreages impacted,
- wetland types impacted,
- time period during which wetland impacts occurred (i.e., one season or multiples), and
- typical mitigation.

Additionally, the Draft EIS would benefit from a discussion focused on wetland habitat recovery from temporary impacts of road/landing construction and/or drill pad construction. For example:

- how fast does vegetation recover,
- are supplemental plantings needed to restore habitat,
- is non-native, invasive species control in wetlands needed for past exploratory drilling activities?

If a wetland will be converted, possibly for access or maintenance, we believe in-kind mitigation for wetland conversion would be logical. If this is the case, a mitigation ratio of 0.25:1 or 0.5:1 would be appropriate.

Likewise, if a drill site and/or access road will be open for more than one season and an associated temporary loss of wetland functions will occur, we strongly recommend USFS consider mitigation for temporal loss of wetlands functions and values. For example, if the flora of a forested wetland is cut to allow access or a drill pad to be constructed, a long-term impact may not be realized because the site is not permanently converted to another land type. However, the trees will require several years to grow back, and, therefore, a temporary loss of wetland functions and values are realized at that site. Using that rationale, we strongly recommend the EIS be revised: a) to describe the conditions and length of time that would result in a temporary loss of wetland functions and values, and b) request a stipulation be added that requires a mitigation ratio of 0.25:1 or 0.5:1 for temporal loss of wetlands.

Lastly, we recommend the EIS clarify that grubbing activities necessary to construct access roads, landings or drill pads is also subject to the Clean Water Act standards and may, therefore, require a Section 404 permit from the U.S. Corps of Engineers.

> **Recommendation:** We recommend the EIS include a review of wetland impacts and mitigation which occurred as a result of previous drilling. We encourage USFS to consider mitigation for temporal loss.

Aquatic Passage

We recommend the EIS clarify discuss the types of culverts that will be used to maintain normal hydrologic regime and accommodate aquatic passage (i.e., three-sided culverts) on newly-constructed access roads.

> **Recommendation:** We recommend the EIS include a discussion of culverts typically used to accommodate aquatic passage.

Air Quality

The Draft EIS indicates that time and spatial scales of air quality effects from projects such as the proposed exploration project are not large enough to be a concern except possibly at small scales. Because drilling activity only affects air quality over a short distance downwind and for only a few days or weeks depending on the phase of the drilling project, potential impacts to air quality from the proposed project are not expected to be long-lasting or significant.

Nevertheless, we recommend USFS develop an anti-idling policy to control air pollution, reduce fuel consumption and potential noise impacts, and protect workers and recreational users of the SNF. These policies include turning off all diesel engines on non-essential equipment (i.e., access equipment) when not in active use and on trucks waiting to load or unload materials for five minutes or longer. Exceptions to allowing diesel equipment for more than five consecutive minutes when not in use, occupied by an operator, or otherwise in motion should be:

- When the equipment is forced to remain motionless due to traffic conditions or mechanical difficulties outside of the operator's control,
- When it is necessary to operate auxiliary systems installed or attached to the equipment,
- To bring the equipment to the manufacturer's recommended operating temperature, particularly in winter weather,
- When idling is necessary to ensure safe operation of the vehicle, and/or
- When the equipment is being repaired.

EPA would also like to take this opportunity to refer USFS to the enclosed document entitled "Cleaner Diesels: Low Cost Ways to Reduce Emissions from Construction Equipment" dated March 2007. While we realize the parameters of the proposed project are different from typical roadway projects, this document identifies low-cost ways to reduce emissions from non-road construction equipment. The report discusses low-cost activities in three categories: 1) operating strategies, 2) fuel strategies, and 3) equipment strategies.

We encourage USFS to incorporate emissions reductions measures appropriate to the proposed project. If members of the project team would like to discuss this topic further, please contact Anthony Maietta of the Control Strategies Section of EPA's Air and Radiation Division at (312) 353-8777.

> **Recommendation:** We recommend USFS include a commitment in the ROD that appropriate emissions reductions measures will be included as stipulations on the permits and operating plans.

Noise

Maximum Decibels (dBA)

The noise analysis in the Draft EIS is not clear if a maximum dBA has been established for all alternatives. Alternatives 3 and 5 have a maximum limit of 78 dBA at 20 ft. from drilling rigs, and Alternative 4 imposes limits on noise reaching receptors. One of the stipulations indicates sound levels reaching private and recreational residences must be no more than 50 dBA for all action alternatives. However, Alternative 2 does not appear to impose a maximum dBA at 20 ft. from drilling rigs or at receptors.

> **Recommendation:** We recommend a revision to Alternative 2 that includes a maximum dBA, similar to the conditions stated in RV-3 Stipulation.

Season of Activities

The Wildlife Section of the Draft EIS indicates that activities will take place year round, but about 60 percent of the ground-disturbing activities in Alternatives 2-4 may be restricted to frozen or dry soil conditions to comply with seasonal soil stipulations. This information would enhance the analysis of cumulative noise impacts for Alternatives 2, 3, and 4 when compared to Alternative 5, which provides for seasonal noise reduction within the project area by allowing drilling exploration and other project-related activities to occur only from November 1 through April 30.

> **Recommendation:** We recommend the Noise Section be revised to incorporate a broader discussion of soil stipulations driving drilling time.

Indicator 6: Level of Annoyance

The Draft EIS indicates that drilling would cause a greater degree of annoyance than other motorized sound due to the continual duration of the activity (24/7 for an average of 3 weeks). The receptors that are most likely to experience substantial annoyance are recreational users at the Birch Lake Campground (Campground) and possibly some residences on Birch Lake due to proximity of proposed drilling. The analysis also indicates that, if drilling occurs during summer at sites very close to the campground or the residences, there would likely be substantial disruption to the recreational experience and sound may be highly annoying for recreationalists within 418 ft. of the drill site.

> **Recommendation:** We recommend a stipulation be added to reduce or avoid noise impacts to campground users and residences of Birch Lake if drilling is proposed during summer months.

Duluth Minerals' Aerial Surveys

The Draft EIS indicates that geophysical surveys may also include airborne surveys using helicopters or airplanes. In particular, Duluth Minerals' operating plan indicates that aerial surveys may be conducted. The Draft EIS also indicates that, although USFS is usually notified when these types of surveys will take place for safety purposes, these types of surveys do not require USFS permits or consent.

Due to the fact that BLM and USFS have received an operating plan indicating aerial surveys may be conducted, this activity is reasonably foreseeable and impacts should be analyzed as part of this EIS.

> **Recommendation:** We recommend the Final EIS include a discussion of possible impacts from potential aerial surveys using current operating plans and activities conducted during typical mineral exploration in northern Minnesota during the past 5 years, as well as professional experience and knowledge of USFS and BLM personnel.

Light

EPA understands that artificial light generated to safely and effectively use drilling equipment was not considered during impacts analysis. Most drilling will be done during the winter and all will be done 24-hours a day. This amounts to at least 8 hours of drilling during dark in the summer months and at least 16 hours of drilling during dark in the winter months. Not only would night drilling require artificial light, but it would also be required on cloudy days and possibly during sunset and sunrise. Given the amount of artificial lighting reasonably anticipated, we recommend an analysis of the various impacts of artificial lighting to the surrounding environment.

Light impact analysis should include, but is not limited to:

- The amount of light required per drilling operation;
- The timing and daily duration of artificial lighting needed;
- How artificial lighting will be powered and any associated impacts (for example, noise associated with running a generator);
- Artificial light impacts to forest ecology (are there any species that might be deterred or attracted to the light source or are there any disruptions to migratory paths due to artificial lighting?);
- Impacts to visitors; and

If the analysis indicates that there will be an impact from artificial lighting, mitigation measures (e.g., directing light downward) should be discussed in the Final EIS and committed to in the ROD.

> **Recommendation:** We recommend an analysis of the various impacts of artificial lighting to the surrounding environment.

Visitors

Based on communications between Judy Ness of USFS and Elizabeth Poole of my staff, we understand that "low recreation use," as laid out in *Section 2.4.3.4 Recreation and Visuals*, is defined as 3 to 15 people for overnight developed sites and 1 to 5 people for the general forest. This is compared to 36 to 75 people and 16 to 35 people, respectively, for "high recreation use." We recommend these definitions be included in the Final EIS. This would give the reviewer a better understanding of Forest Plan stipulations and how many people are reasonably expected to be impacted during their recreation experiences.

We appreciate that we were provided with the National Visitors Use Monitoring Program. However, we recommend including some of this data in the Final EIS. This information would help explain visitor impacts among the alternatives. For example, Judy Ness indicated that most campers at registered campgrounds visit between May and September. Under any of the alternatives, there will be some drilling during the summer. Given this, an estimate of how many people might visit during the summer would be beneficial. This number should include approximate number of visitors to developed sites and an estimate of visitors to undeveloped sites.

We understand the difficulty of estimating the number of visitors who might be affected by drilling operations in the winter, especially since there is not a sufficient way to track these visitors as they come for unregistered day-use, such as to cross-country skiing or snowshoeing. However, since all alternatives include some winter drilling, it would be beneficial to see an estimate of how many people might visit during the winter and, therefore, might be impacted by drilling.

We also understand that the SNF is committed to public notification of events which might have impacts to visitors. This includes, but is not limited to, posting on the website, advertising at recreation facilities, and other notifications that visitors might experience disruptions due to various activities. We commend USFS for committing to public notification. However, we recommend that this information is included in the Final EIS and committed to in the ROD. Because SNF visitors will be a key receptor of drilling impacts, it is important that every effort is made to mitigate these impacts.

Despite all efforts to notify visitors, there will still be visitors who remain unaware of drilling activities until they arrive at the SNF. Judy Ness indicated that in developed campgrounds that require reservations, fees, or permits, visitors will be able to transfer from one campground to another should drilling impacts become too great, but only if sites at other campgrounds are available. Visitors who make advanced reservations will be notified of drilling schedules via the SNF website. We recommend this information be included in the Final EIS. We also recommend that continued notification to visitors be in place as drilling schedules change.

We also understand that because of the distribution of campgrounds in relationship to businesses, there are no anticipated economic impacts to visitors clustering in certain campgrounds over others. This is because, in general, most businesses are not located near campgrounds, but are centrally located in towns, such as Ely. This is to say that campers from several different campgrounds must all return to Ely in order to get supplies. Therefore, because there are no or few businesses adjacent to the campgrounds, it is unlikely that there would be an impact the local economy from visitors seeking campground further from drilling operations.

> **Recommendation:** We recommend including definitions of low- and high-recreation use in the Final EIS; we also recommend including more robust numbers and estimates of visitor uses by season. We encourage USFS to commit to public notification measures in the ROD and any exceptions that might be granted to visitors who wish to move campgrounds. Finally, we recommend that a

discussion of the impacts to local businesses from displaced campers be included in the Final EIS.

Environmental Justice and Economics

EPA understands the economic model that supported the conclusions in *Section 3.14 Economics and Environmental Justice* took into account several assumptions. One of these assumptions was that the geographic area input was large enough to account for all labor required for drilling operations. This led to the conclusion that there would be no influx of new laborers into the five-county surrounding area as a result of the drilling operations and that there would be no undue burden to housing prices or access to services for current residents.

> **Recommendation:** As discussed between Henry Eichman of USFS and Elizabeth Poole of my staff, we recommend including the model assumptions in the Final EIS.

Threatened and Endangered Wildlife Species – Lynx and Gray Wolf

The Draft EIS analyzes potential impact from temporary roads and human disturbance. The analysis would benefit from a discussion focused on the process for determining buffers or restricted areas around known denning areas for both species.

> **Recommendation:** We recommend the EIS include a discussion concerning determination of lynx and gray wolf buffers or restricted areas during denning season.

The Draft EIS indicates that a small percent of forest will be changed to 0-9 years old. Clearing drill pads will temporarily change habitat by 0.5 percent in any Lynx Analysis Unit (LAU).

> **Recommendation:** We recommend the EIS include a discussion explaining the process for analyzing change in LAUs attributable to temporary access roads and what the allowable habitat change to the 0-9 year old category is according to Plan habitat guidelines.

Bonding

Page 27 of the DEIS states:

> "The Forest Service may require companies to secure a reclamation bond with BLM before a specific prospecting permit or operating plan is approved. A bond estimate would be developed by the Forest Service or by the company and reviewed and accepted by the Forest Service for each exploration operating plan. These bonds may be greater than the bonds required by BLM since the Forest Service includes all costs associated with the reclamation of surface resources including administrative costs. Bonds may be blanket statewide bonds that cover

multiple permits and plans or individual bond instruments such as cash, certificate of deposit, Treasury note, and savings account."

We recommend that bonding be required that are at least as stringent as those described on page 13 of BLM's Gold Book.

Recommendation: We recommend that bonding be required.